

PRV

PATENT- OCH REGISTRERINGSVERKET
Patentavdelningen

JC675 U.S. PTO
10/026833
12/27/01

Intyg Certificate

Härmed intygas att bifogade kopior överensstämmer med de handlingar som ursprungligen ingivits till Patent- och registreringsverket i nedannämnda ansökan.

This is to certify that the annexed is a true copy of the documents as originally filed with the Patent- and Registration Office in connection with the following patent application.



71) Sökande Nokia Corp, Esbo FI
Applicant (s)

(21) Patentansökningsnummer 0004904-9
Patent application number

(86) Ingivningsdatum 2000-12-29
Date of filing

Stockholm, 2001-12-17

För Patent- och registreringsverket
For the Patent- and Registration Office

Kerstin Gerdén
Kerstin Gerdén

Avgift
Fee 170:-

4

1115.41014X00



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): DAHLSTROM, Anna
Serial No.: Not yet assigned
Filed: December 27, 2001
Title: METHOD FOR STORING INFORMATION
Group: Not yet assigned

LETTER CLAIMING RIGHT OF PRIORITY

Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

December 27, 2001

Sir:

Under the provisions of 35 USC 119 and 37 CFR 1.55, the applicant(s) hereby claim(s) the right of priority based on Swedish Patent Application No.(s) 0004904-9, filed December 29, 2000.

A certified copy of said Swedish Application is attached.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

A handwritten signature in cursive script that reads "Robert M. Bauer". The signature is written in dark ink and is positioned above a horizontal line.

Robert M. Bauer
Registration No. 34,487

RMB/alb
Attachment
(703) 312-6600

METHOD FOR STORING INFORMATIONFIELD OF INVENTION

The present invention relates generally to a method and
5 a terminal for storing user information in a multimedia
terminal and more particularly to storing information
regarding a user of a multimedia integrated receiver
decoder arranged to be used with the Multimedia Home
Platform standard.

10 BACKGROUND

Multimedia terminals and applications are becoming
increasingly popular. Such systems open up for new
services and features for television users as well as
for operators. A standard developed by the Project on
15 Digital Video Broadcasting is the so-called Digital
Video Broadcasting standard or simply DVB standard. Its
main intent is to reap the benefits of technical stan-
dardisation. For more information regarding the DVB
standard, reference is made to the publication "Digital
20 Television MPEG 1 MPEG 2 And principles of the DVB Sys-
tem", H Benoit, ISBN 0-471-23810-4, or to the DVB Home
Page on the Internet: <http://www.dvb.org>.

Coexisting with the DVB standard, there is a so-called
Multimedia Home Platform (MHP) Specification, see for
25 example the ETSI home page: <http://www.etsi.org>. This
specification further describes hardware and software
related matters relating to multimedia applications,
such as application signalling and application life
cycle.

30 With the power of today's set-top boxes and other Inte-
grated Receiver Decoders (IRDs) it is possible to ana-

lyse the behaviour of television viewers by letting the IRD track the users channel switches etc. However, due to hardware and performance limitations, it is not possible for all applications to run simultaneous in the IRD. Also, a downloadable MHP application running on the IRD can only run inside the services (TV-channels) that signals the application in their so-called Application Information Table (AIT). Therefore a downloadable agent that the viewer would like to use can only collect information and learn the viewer's habits in some specific channels. This information would be more valuable if an agent application could be awake in all channels.

However, this is not feasible according to MHP standard. When service selection API is used only application signalled in that selected service Application Information Table (AIT) will be able to run. Tuning to another transport stream or channel can be done using the tuning or streaming media API to avoid that the application is being stopped. However, the usage of these APIs does not constitute service selection. The service selection should normally be used because otherwise the other services applications will not be loaded. To use the tuning API an application also needs a certain permission that probably will not be given to an application that wants to be the "one and only".

Thus, the problem is that a downloadable agent application can only have access to information about all viewing and IRD usage habits in the channels that it has permission to be alive in instead of all channels.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a method, a multimedia integrated receiver decoder and a system for storing information regarding a multimedia user as well as a computer program product wherein the above mentioned drawbacks are eliminated or at least mitigated and wherein it is possible for a downloaded agent application to have access to user information related to other channels or information streams.

10 The invention is based on the realisation that an Application Program Interface (API) can be used as a means for allowing several MHP applications to share common information. An IRD adapted to use the method according to the invention is provided with a resident application that collects the information and makes it
15 accessible through an MHP like API for downloadable applications.

According to a first aspect of the invention there is provided a method as defined in claim 1.

20 According to a second aspect of the invention there is provided a multimedia integrated receiver decoder as defined in claim 6.

According to a third aspect of the invention there is provided a computer program product as defined in claim
25 7.

By using the method, the multimedia terminal, the system and the computer program product according to the invention the above objectives are attained. Thus, the invention makes it possible for agents to get information on viewing and box using habits for all channels.
30

This will give an agent more information to work on and it can therefor do a better job.

BRIEF DESCRIPTION OF DRAWINGS

The invention is now described, by way of example, with
5 reference to the accompanying drawings, in which:

FIG. 1 is an overall diagram of a communication system embodying the invention,

FIG. 2 is conceptual model of a user equipment utilis-
ing a MHP baseband processor for receiving information,
10 and

FIG. 3 shows a flow chart describing the inventive method.

DETAILED DESCRIPTION OF THE INVENTION

In the following, a preferred embodiment of a method
15 and a terminal according to the invention will be described.

The backbone of a communication system for multimedia applications will now be briefly discussed with reference to figure 1. The backbone comprises a number of
20 communication paths 30, one of which is shown in figure 1. The transmission medium supports high-speed transmission of digital information, such as audio (A), video (V) and data (D). A number of users are connected to the backbone, of which a first user 10 is shown in
25 the figure. This user 10 functions as a receiver of multimedia information, such as a subscriber of television programmes, provided by a number of service providers, designated 40 in the figure. Each user has a so-

called Integrated Receiver Decoder (IRD) or Set-top Box arranged to process the incoming information and sometimes also function as a transmitter of information.

A method covered by a standard, such as the above mentioned Multimedia Home Platform, could be used to send the information to the user 10 through receiver equipment at the user, which will now be discussed with reference to figure 2, wherein an IRD 11 is shown. A transport stream arriving from the transmission medium 30 is received at an input 12 and is directed to a video and audio decoder 13, wherein the signals are decoded. The decoded audio and video signals are synchronised in the decoder 13 and the decoded signals are then directed to a digital to analogue (D/A) converter 14, wherein the digital information is converted to analogue form useable by a TV encoder, such as a PAL encoder 15. The encoder 15 supplies the encoded information through an output 16 and to a presentation unit, in this case a TV set 60, on which the information is displayed as a TV programme, for example. The data information can comprise several kinds of information.

The operation of the IRD 11 is controlled by means of software 17 run on suitable processor hardware (not shown). Thus, the software is stored in memory and is run either on request by the user or in response to some event. User requests are input to a second input 18, which could comprise an IR port, for example, communicating with a remote controller (not shown).

Information regarding user commands is collected by a collection application 21, residing in the IRD 19 and the information is stored in user database 19. The

database contains relevant information on user behaviour, of which the following is a non-exhaustive list: What TV programmes are watched, the genre of programmes being watched, what kind of commercials the viewer prefers, how long programs the viewer watches, which sites on the Internet the viewer visits, which programs the viewer records, which programs the viewer saves for long term, which parts of the program the viewer watches (in case the program is segmented as suggested in the TV-Anytime standard, form example), etc.

The invention is based on the use of an Application Program Interface (API) 20 in the IRD 11. An API is the calls, subroutines, or software interrupts that comprise a documented interface so that a (usually) higher-level program such as an application program can make use of the (usually) lower-level services and functions of another application, operating system, network operating system, driver, or other lower-level software program.

The method according to the invention will now be described with reference to the flow chart in fig. 3. First, in step 110, the collection application 21, see fig. 2, interprets user commands input through input 18, for example. The interpreted commands are collected to give information about the user's behaviour, step 120. This information is then, in step 130, stored in the user database 19. The application that collects the information and saves it could be done in any programming language. The saving could be done to RAM, flash or to a non-volatile memory, such as a hard disk. The structure of the saved data is preferably implementation dependent.

Thereafter, in step 140, the user information is made accessible by means of the API 20, see fig. 2. The API from which the downloadable applications access the information should be specified in a standardised way
5 like MHP specification to ensure interoperability between different boxes and applications.

When later a downloadable agent application is downloaded, step 150, this agent can make use of the user information gathered in steps 110-130. In that way, the
10 agent application can make "intelligent" suggestions about choice of language, recording options etc. by accessing the user database through the use of the API 20 residing in the IRD 11, step 160.

Preferred embodiments of the invention have been
15 described. The person skilled in the art realises that these can be varied within the scope of the appended claims. Thus, the inventive idea is applicable to the Multimedia Home Platform standard but could also be used with other similar standards and application
20 frameworks, wherein the problem of coexisting applications is present.

There is possible to regulate the permissions a downloadable agent will have to the information. Thus, the permissions for agent applications to have access to
25 APIs for external contact can be denied to make sure that the users (TV-viewer) privacy is kept.

CLAIMS

1. A method of storing information in a multimedia
5 integrated receiver decoder (11) arranged to be used
with the Multimedia Home Platform standard, said method
being **characterized by** the following steps:
 - a) interpreting user commands (110) input to said inte-
grated receiver decoder,
 - 10 b) collecting said user commands (120),
 - c) saving said user commands (130) as data items in a
database, and
 - d) making said data items accessible to computer appli-
cations run on said integrated receiver decoder by
15 means of an Application Program Interface (140).
2. The method according to claim 1, comprising the
additional step of:
 - e) downloading an agent application adapted to access
said data items through said Application Program
20 Interface.
3. The method according to claim 2, wherein said
additional step of downloading comprises using said
data items to facilitate the operation of said inte-
grated receiver decoder (11).
- 25 4. The method according to claim 2 or 3, wherein
there is provided for denying access to said data items
for agent applications.
5. The method according to any of claims 1-4,
wherein said data items comprise any of the following

user information: what TV programmes are watched, the genre of programmes being watched, what kind of commercials the viewer prefers, how long programs the viewer watches, which sites on the Internet the viewer visits, 5 which programs the viewer records, which programs the viewer saves for long term, and which parts of the program the viewer watches.

6. A multimedia integrated receiver decoder (11) arranged to be used with the Multimedia Home Platform 10 standard, said integrated receiver decoder being

characterized by

- elements (17,21) for interpreting user commands input to said integrated receiver decoder,
- elements (21) for collecting said user commands,
- 15 - elements (21) for saving said user commands as data items in a database, and
- an Application Program Interface (20) making said data items accessible to computer applications run on said integrated receiver decoder.

20 7. A computer program product directly loadable into the internal memory of a multimedia integrated receiver decoder (11), said computer program product comprising software code portions for performing the following steps:

- 25 a) interpreting user commands (110) input to said integrated receiver decoder,
- b) collecting said user commands (120),

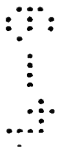
- c) saving said user commands (130) as data items in a database (19), and
 - d) making said data items accessible to computer applications run on said integrated receiver decoder by means of an Application Program Interface (140).
- 5

1
2
3
4
5
6
7
8
9
0

ABSTRACT

A method of storing information in a multimedia integrated receiver decoder arranged to be used with the
5 Multimedia Home Platform standard. First, user commands
input to the integrated receiver decoder are interpreted (110). Then, the user commands are collected
(120) and saved (130) as data items in a database.
Finally, the data items are made accessible to computer
10 applications run on the integrated receiver decoder by
means of an Application Program Interface (140). This
makes it possible for agents to get information on
viewing and box using habits for all channels.

(FIG. 3)



1/2

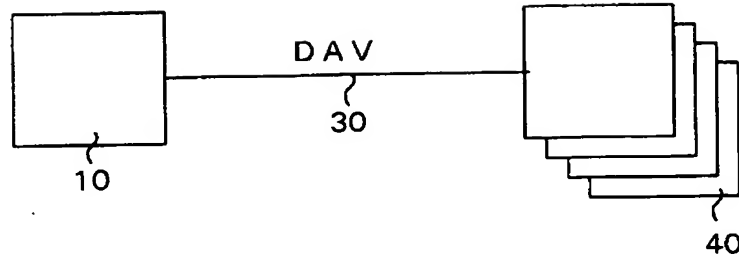


Fig. 1

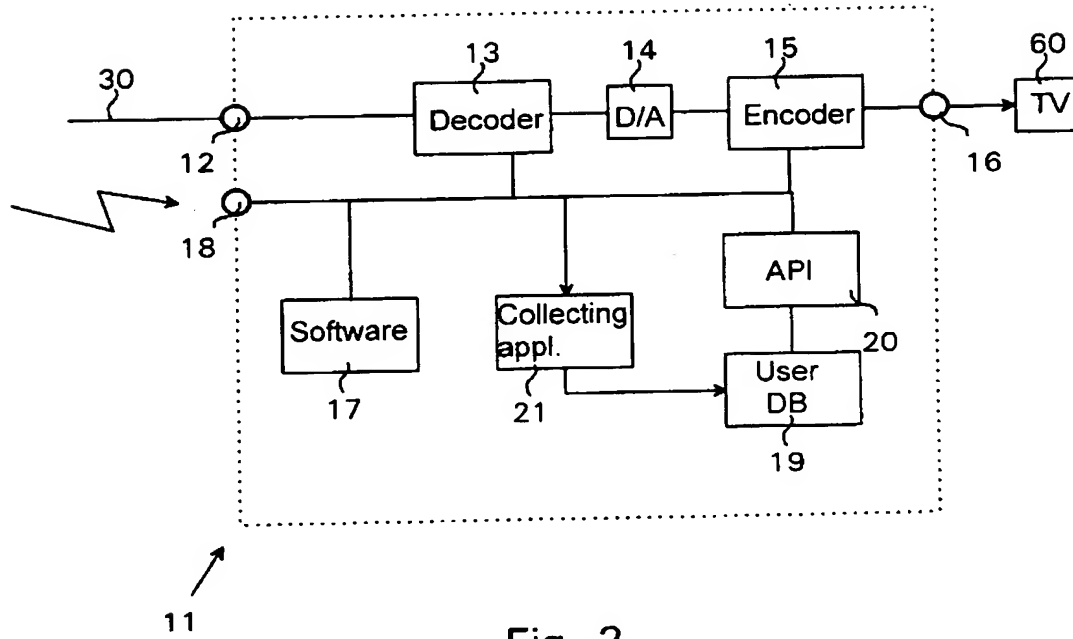


Fig. 2

2/2

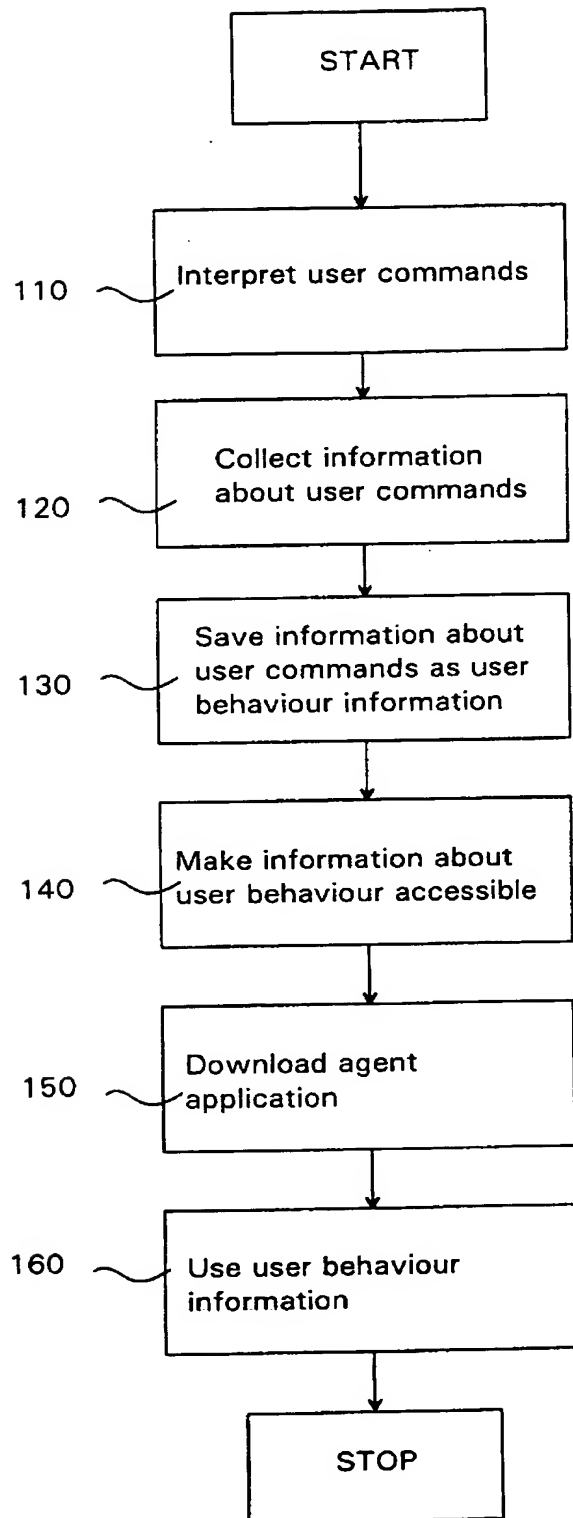


Fig. 3